

The Effectiveness of Infographic Learning Media in Increasing Learning Interest, Visual Spatial Intelligence and Student Learning Outcomes in Gugus Ahmad Yani KEC. Kuningan

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ABSTRACT

The industrial revolution 4.0 encourages people to be able to maximize technology and information. Not least in the world of education, teachers are competing to innovate in terms of utilizing technology as a learning support. Learning will be fun when it is supported by interesting learning media. According to the Ministry of Education, Culture, Research and Technology of the Republic of Indonesia by utilizing a variety of media on technology and information devices, teachers can present information / teaching materials in a more varied and interesting form (not just text) so that students understand lessons more easily. This can be used by teachers to increase students' interest in learning about Pancasila and Citizenship Education (PKn) lessons. Pkn learning will be interesting if the teacher can make updates in the implementation of learning. Infographic learning media can be a solution to attract students' interest in learning, with increased interest in learning expected to be in line with increased visual intelligence and learning outcomes. The novelty in this study is the existence of a mediator variable of spatial visual intelligence. The purpose of this study is to use infographic learning media in Pkn learning.

The design of this research is *Quasy Experimental with Nonequivalent Control Group Design*. Sampling was carried out using *cluster random sampling*.

The results can be concluded that the indirect effect of interest in learning on learning outcomes

through visual-spatial intelligence = 0.203 < 0.029. This means that visual-spatial intelligence is not effectively mediates interest in learning towards learning outcomes

Keywords: Interest in learning, Visual Spatial Intelligence, Learning Outcomes

INTRODUCTION

Good education will make human resources who have high competence, are capable, and skilled. In Indonesia education is the main activity carried out to create superior and quality future generations. This is in line with the functions and objectives of national education as stated in Article 3, Law no. 20 of 2003 concerning the national education system: "National education functions to develop capabilities and form dignified national character and civilization in the context of educating the nation's life, aiming at developing the potential of students to become human beings who believe in and fear God Almighty, have noble character, are healthy, knowledgeable, capable, creative, independent, and become citizens who democratic and responsible b"

The industrial revolution 4.0 encourages people to be able to maximize technology and information. Not least in the world of education, teachers are competing to

innovate in terms of utilizing technology as a learning support. Learning will be fun when it is supported by interesting learning media. According to the Ministry of Education, Culture, Research and Technology of the Republic of Indonesia by utilizing a variety of media on technology and information devices, teachers can present information / teaching materials in a more varied and interesting form (not just text) so that students understand lessons more easily. There are tons of features on various visual-based platforms that can be used to create infographics, graphs, tables, comics and so on .

Renewal efforts in education are more emphasized on the process of teaching and learning, in addition to rearranging the direction and goals of education itself. The problem of the teaching and learning process, if in the past it was more emphasized through the form of words, so that it led to verbalism, then people began to think towards the need for audio and visual learning aids such as pictures, slides, speakers, cassette tapes, short films and television, infographics, comics. (Darwanto, 2011: 101). In other words, the advancement of information technology today makes learning media have unique characteristics compared to previous learning media.

The problem faced by today's children is to get information that is concise, concise, visually clear so that it requires students to be efficient in capturing information. This can also affect visual intelligence and student learning interest. The results of the 2011 *Trends in International Mathematics and Science Study* (TIMSS) report reveal that achievement in learning mathematics in Indonesia is still low. Indonesia is ranked 38th out of 42 countries, Indonesia's score is below the international average score . One of the reasons is due to the low visual-spatial intelligence of students. Thus there is a need for an innovation in learning so that it can bridge students to improve visual intelligence.

The quality of Civics learning needs to be improved on an ongoing basis to keep pace with technological developments. This is also intended to boost the learning outcomes of Civics learning which so far has been considered less attractive, resulting in less optimal student learning outcomes. The observation findings show that there are still many students whose Civics scores are still below the KKM.

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The problem faced by today's children is to get information that is concise, concise, and visually clear so that it requires students to be efficient in capturing information. This can also affect visual intelligence and student learning interest. The results of the 2011 *Trends in International Mathematics and Science Study* (TIMSS) report reveal that achievement in learning mathematics in Indonesia is still low. Indonesia is ranked 38th out of 42 countries, Indonesia's score is below the international average score . One of the reasons is due to the low visual-spatial intelligence of students. Thus there is a need for an innovation in learning so that it can bridge students to improve visual intelligence.

Utilization of infographic learning media needs to be done considering that students are more interested in what they see rather than verbal delivery. Utilization of this can also eliminate *gaps* that occur, because so far PKN is considered a lesson full of rote learning. Infographics are graphical representations of data that are intended to

present information more clearly. Infographics can improve cognition by utilizing graphics which enhance the ability of the human visual system to see patterns and trends (Terabe et al., 2020) in the world of education, data graphics that are made into an infographic can be sourced from teaching materials.

In the world of education, interest in learning is usually correlated with learning outcomes. Interest in learning is the basis for improving learning outcomes. According to (Fauhah & Rosy, 2020) learning outcomes are experiences that students have gained after students receive learning. Furthermore, he explained that learning outcomes are mastery that has been obtained by a person or student after students absorb the learning experience. Learning outcomes are a number of experiences gained by students who includes cognitive, effective, and psychomotor domains. Quantitatively learning outcomes can be accessed through scores, report cards. Thus the author will continue research in class Va and Vb SDN 17 Kuningan, SDN 1 Awirarangan with the title "Effectiveness of Infographic Learning Media in Increasing Learning Interest, Visual Spatial Intelligence and Civics Learning Outcomes in Gugus Ahmad Yani Kec. Brass". The novelty in this study is the existence of a mediator variable, namely the visual-spatial intelligence variable, so that later it will be known the direct and indirect effects.

LITERATURE REVIEW

Infographic Learning Media

Learning media is a tool that functions to explain parts of the entire learning program that are difficult to explain verbally. Learning material will be easier and clearer if learning uses learning media. So the learning media is not to explain the whole subject matter, but only some that are not clear. This is in accordance with the function of the media, namely as an explanatory message. For this reason, one of the characteristics of learning media can be seen according to its ability to generate stimulation in students' senses of sight,

hearing, touch, and smell. In general, the characteristics of learning media are that media can be touched, seen, heard, and observed through the five senses. (Hadibin, 2013). According to Lorocozo in (Õ et al., 2016) defines an infographic as a visualization tool that is used with purpose of informing users in general. Moreover, it is considered as a new skill area for teachers. Meanwhile, according to (Tsai et al., 2020) infographics have become one of the most popular delivery tools in recent years. Infographics contain information in pictures and can also tell a story, and give more Lots information or knowledge deliver it.

To be used as informative learning media. Infographic learning media has indicators, including (Primayenti, 2022) : 1) Factual which means it contains facts scientifically and can be accounted for. 2) A coherent infographic is one that conveys a complete message that is credible and believable. Without consistency, an infographic becomes incoherent and disorganized, which then negatively affects the reader's ability to engage with and derive meaning from an infographic. Thus it is clear that the researcher focuses on these two indicators.

The use of infographic learning media can make it easier to digest the information one reads. The following are the benefits of infographics according to (Primbada, 2018): a) To convey information with limited space, time and focus owned by the reader. b) Stimulate the reader's attention in an efficient way so that the reader understands more easily. c) Infographics can be super effective tools in digital marketing campaigns and they can also be used very easily by small businesses as well as large organizations

Interest to learn

According to (Halim et al, 2018) said to revive students' interest in learning and to overcome negative perceptions of science, respective stakeholders need to take the necessary actions and play their roles within their authority. Thus, the role of parents is also considered important to complement the formal efforts of educational institutions.

Parental support in the academic field has the ability to increase self-efficacy, attitudes, and strong expected results. Interest in learning is defined by (Abdul, 2003) with a tendency to pay attention and act on people, activities, or situations that are the object of that interest accompanied by feelings of pleasure. In this discussion there is an understanding that in interest there is concentration on the subject, there is an effort to approach, know, own, mastering, or dealing with the subject that is done with feelings of pleasure, there is an attraction from the object . interest in learning is an aspect that can determine a person's motivation in carrying out certain activities such as learning

Interest in learning can be measured through 4 indicators as mentioned by Slameto in (Basri & Akhmad, 2018) namely interest in learning, attention in learning, learning motivation and knowledge. Interest in learning means that if someone is interested in a lesson, he will have a feeling of interest in that lesson.

Interest is closely related to the attitude of one's needs and has the following functions Hidayat in (Pratiwi, 2016) : a) A strong source of motivation for learning. Children, who are interested in an activity, both play and work, will try harder to learn than children who are less interested. b) Interest affects the intensity of the child's appreciation. When children start thinking about their future work, the greater their interest in activities in class or outside the classroom that support the achievement of these aspirations. c) Add excitement to every activity that is occupied by someone. Children who are interested in a job or activity, their experience is much more enjoyable than those who feel bored. d) Thus the function of interest in learning can be interpreted as a strong source of motivation and energy in learning that keeps students interested and focused on participating in learning

Spatial Visual Intelligence

Spatial visual intelligence is the ability to visualize or create images that imagined the

idea. According to (Haley, 2004) spatial intelligence considers the ability to mentally reconstruct or modify the view of objects in three-dimensional space , ending with the representation of ideas (Sadeghi & Farzizadeh, 2016) . Individuals who have superior spatial intelligence are also sensitive to color, shape and form. According to (Haley, 2004) This type of intelligence also includes an aptitude for graphically representing spatial or visual ideas .

One intelligence that can be developed and tested for its level of competence is spatial visual intelligence (Hariastuti et al., 2018) . Visual-spatial intelligence is the ability to accurately perceive the visual-spatial world and to transform that visual-spatial perception into various forms. It was further revealed that the core components of visual-spatial intelligence are sensitivity to line, color, shape, space, balance, harmony, pattern, relationship between elements, the ability to imagine, present ideas visually and spatially, and orient appropriately .

Yaumi (2012: 16) there are three keys to defining spatial visual intelligence, namely (a) perceiving, namely capturing and understanding something through the five senses; (b) spatial visual related to the ability of the eye, especially color and space; (c) transforming, namely diverting the formation of things that are captured by the eye into other forms, for example seeing, observing, recording, interpreting in the mind and then pouring these recordings and interpretations into paintings, sketches or collages. Characteristics with high spatial visual intelligence, namely (a) being able to understand maps, pictures, schemes and others; (b) able to fantasize and imagine more creatively; (c) able to imagine or describe the objects he saw .

Learning outcomes

According to (Syachtiyani & Trisnawati, 2021) good learning outcomes can be a reference that the learning process that has been experienced by individuals and groups is said to be successful . In addition, learning outcomes are useful for evaluating what are

the strengths and weaknesses possessed by each individual, the appropriate learning model used by educators, the effectiveness of teaching methods, to find out how far individual knowledge is and to provide experience to these individuals that are useful for future life .

Learning outcomes (Destyana & Surjanti, 2021) is important in the learning process because this is an indicator that can be used as a reference to determine student learning progress, as feedback for improving the learning process in order to achieve predetermined learning objectives. Learning outcomes can be used as a measure in determining the abilities or competencies possessed by students after obtaining learning experience. This is in line with Dirman's opinion that learning outcomes are certain competencies or abilities both cognitive, affective and psychomotor that are achieved or mastered by students after participating in the teaching and learning process . Furthermore (Dirman, 2014) learning outcomes are changes in behavior as a result of the learning process . In this case learning outcomes are instant assessments carried out by school units every day, semester or even every year

There are several factors that affect student learning outcomes (Saputra et al., 2018) , namely internal factors or factors that come from within the individual and external factors or factors that come from outside the individual (Saputra et al., 2018). Factor from the inside self individual including: (1) physical factors or physical health, (2) spiritual factors or circumstances inner, (3) factor psychology. While external factors individual including: (1) family factors, starting from looking to educate applied, connection with family, as well as support provided by parents And family, (2) school factors such as relationships with Friend, method teaching teacher, process learning and the facilities provided, (3) factors public start from the role of oneself in society, relations with the surrounding environment and environmental conditions .

According to Jihad in (Botty, 2018) Some things that become indicators of student success in learning are as follows: 1) Enthusiastic students do the task. 2) The activeness of students expressing opinions. 3) The courage of students to ask. 4) The courage of students to answer questions . In addition, indicators that can be used as benchmarks in stating one's learning outcomes are as follows : The absorption of the lesson material that has been taught achieves high achievements, both individually and in groups , The behavior outlined in the specific teaching objectives has been achieved by students both individual or group .

MATERIALS & METHODS

The research design used in this research is *Quasy Experimental* with the *Nonequivalent Control Group Design*. This design is used by researchers because researchers cannot fully control the variables that can influence research.

The population in this study is an elementary school in Kuningan district, Ahmad Yani cluster. The sample which is part of the population in this study is class Va, Vb, Vc, SD Negeri 17 Kuningan and SDN 1 Awirarangan with a total of 162 students. Sampling was carried out using *cluster random sampling*, which is a regional sampling technique used to determine the sample (Sugiyono, 2012: 94). This is obtained after the draw is carried out by means of *random selection* of ten elementary schools in the Ahmad Yani cluster, Kuningan district. Respondents in this study were students and teachers. In this case the teacher as an informant or resource person to strengthen this research. This sampling is based on the results of observations and the similarity of student characters and competencies.

RESULTS

The results of the study show that infographic learning media is effective in increasing students' interest in learning at

SDN 17 Kuningan. The results of data calculations can be seen in table 4.6.

Table 4.6 Study Interest t-test results

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Differences	std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Interest to learn	Equal variances assumed	6,709	,010	2,995	160	,003	3.34568	1.11708	1.13955	5.55181
	Equal variances not assumed			2,995	153,282	,003	3.34568	1.11708	1.13881	5.55255

Based on Table 4.6, the sig. (2-tailed) 0.003 < 0.05 means that Ho is rejected, meaning that there is a difference in learning interest between the experimental class and the control class. This shows that infographic learning media is effective in increasing students' interest in learning at SDN 17 Kuningan .

Hypothesis 2 obtained sig. (2-tailed) 0.000 < 0.05 means that Ho is rejected, meaning that there is a partial spatial visual intelligence difference between the experimental class and the control class. This shows that infographic learning media is effective for improving students' partial visual-spatial intelligence at SDN 17 Kuningan. Setiani (2018) states that partial visual-spatial intelligence has indicators, including being able to describe solving problems correctly, being able to connect between known power and concepts possessed, being able to use image assistance to solve problems, being able to correctly mention concepts related to problems , able to spark ideas and be able to find patterns in solving problems n.

Hypothesis 3 obtained sig. (2-tailed) 0.000 < 0.05 means that Ho is rejected, meaning that there are differences in learning outcomes between the experimental class and the control class. This shows that infographic learning media is effective for improving student learning outcomes at SDN 17 Kuningan. This research is in line with Taufiqurrahman (2022) which states that infographic learning media can increase learning outcomes by 2.46% according to pre-test and post-test results. The intended

learning outcomes are increased student abilities according to the cognitive domain, including remembering (C1), understanding (C2), sorting and sorting (C3).

Based on the simple linear regression test, *the value of Sig* 0.000 < 0.05 means that learning interest has an effect on visual-spatial intelligence . Then the conclusion that can be drawn is that interest in learning affects the visual spatial intelligence of students at SDN 17 Kuningan . So H4 stated Spatial visual intelligence affects student learning outcomes accepted.

Based on the simple linear regression test, *the value of Sig* 0.000 < 0.05 means that visual-spatial intelligence influences learning outcomes. Then the conclusion that can be drawn is that visual spatial intelligence influences student learning outcomes at SDN 17 Kuningan . So H5 stated Spatial visual intelligence affects student learning outcomes accepted.

Based on the simple linear regression test in Table 4.18, *the value of Sig* 0.036 < 0.05 is obtained, so it means interest in learning towards learning outcomes. Then the conclusion that can be drawn is that learning interest influences student learning outcomes at SDN 17 Kuningan . So H 6 states Spatial visual intelligence affects student learning outcomes accepted.

The indirect effect of interest in learning on learning outcomes through visual-spatial intelligence = 0.203 < 0.029 . This means that visual intelligence is not effective in mediating interest in learning towards learning outcomes. So it can be concluded that H 7 which states visual-spatial

intelligence mediates the effect of interest in learning on learning outcomes Civics in elementary school is rejected. In practice, the visual intelligence abilities in the aspects of *object recognition, visual closure, spatial relations* and *visual discrimination* go in the same direction as the indicators of interest in learning in the form of feelings of pleasure, there is an attraction from objects so that they can improve student learning outcomes. The use of infographic learning media in the learning process is carried out by paying attention to scientific learning steps, namely observing, asking, reasoning, associating and communicating.

CONCLUSION

Based on the results of the study, it was found that a) The direct effect of interest in learning on visual intelligence = 0.830 . b) The direct effect of visual intelligence on learning outcomes = 0.362. c) The direct effect of interest in learning on learning outcomes = 0.203

The indirect effect of learning interest on learning outcomes through visual-spatial intelligence = 0.203 < 0.029 . This means that visual-spatial intelligence is not effective in mediating interest in learning towards learning outcomes. So it can be concluded that H 7 which states that visual-spatial intelligence mediates the effect of interest in learning on learning outcomes Civics in SD is rejected.

Declaration by Authors

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REFERENCES

1. Basri, S., & Akhmad, NA (2018). Using the Snakes and Ladders Playing Method in Learning Science Physics to Increase Students' Interest in Learning. *Journal of Physics Education* , 6 (3), 309–323. <https://doi.org/10.26618/jpf.v6i3.1507>
2. Botty, M. (2018). The Relationship between Creativity and Learning Outcomes of Class V Indonesian Language Subjects at Ma'had Islamy Palembang. *JIP PGMI Scientific Journal* , 4 (1), 41–55. <https://doi.org/10.19109/jip.v4i1.2265>
3. Destyana, VA, & Surjanti, J. (2021). The Effectiveness of Using Google Classroom and Learning Motivation on Student Learning Outcomes in Economics Subjects. *Educative : Journal of Education* , 3 (3), 1000–1009. <https://edukatif.org/index.php/edukatif/article/view/507>
4. Fauhah, H., & Rosy, B. (2020). Analysis of the Make A Match Learning Model on Student Learning Outcomes. *Journal of Office Administration Education (JPAP)* , 9 (2), 321–334. <https://doi.org/10.26740/jpap.v9n2.p321-334>
5. Haley, M. (2004). Learner-Centered Instruction and the Theory of Multiple Intelligences With Second Language Learners. *Teachers College Record - TEACH COLL REC* , 106 , 163–180. <https://doi.org/10.1111/j.1467-9620.2004.00326.x>
6. Hariastuti, RM, Anita, D., & Setiawan, MA (2018). Development of Geo-Sd Media (Dimensional Sketch Geometry) as a Support for Spatial Visual Ability. *AKSIOMA: Journal of Mathematics Education Study Program* , 7 (1), 10. <https://doi.org/10.24127/ajpm.v7i1.1234>
7. Ō, FO, Kocakoyun, S., Sahin, T., & Akdag, S. (2016). *Statistical Reasoning of Impact of Infographics on Education Statistical reasoning of impact of infographics on education* . November . <https://doi.org/10.1016/j.procs.2016.09.414>
8. Pratiwi, A. (2016). EMPLOYEE (Study on PT. Telekomunikasi IPratiwi, A. (2014). EMPLOYEE (Study on PT. Telekomunikasi Indonesia, Tbk. Telkom Pekalongan Region). *Diponegoro Journal of Management*, 3(4), 1–13.Indonesia , Tbk. Telkom Pekalongan Region). *Diponegoro Journal of Management* , 3 (4), 1–13.
9. Primayenti, I. (2022). *The Effect of Tirta.Id Infographics in Conveying Information to Readers* . 4582 .
10. Sadeghi, K., & Farzizadeh, B. (2016). *The Relationship between Multiple Intelligences and Writing Ability of The Relationship between Multiple Intelligences and Writing Ability of Iranian EFL Learners* . February . <https://doi.org/10.5539/elt.v5n11p136>

11. Saputra, HD, Ismet, F., & Andrizal, A. (2018). The Effect of Motivation on Learning Outcomes of Vocational High School Students. *INVOTEK: Journal of Vocational Innovation and Technology* , 18 (1), 25–30. <https://doi.org/10.24036/invotek.v18i1.168>
12. Setiani, Y. (2018). The Effect of Visual-Spatial Intelligence Level on Quantitative Literacy of Mathematics Teacher Candidate Students. *Kreano: Journal of Creative-Innovative Mathematics* , 9 (1), 38–46.
13. Syachtiyani, WR, & Trisnawati, N. (2021). Analysis of Learning Motivation and Student Learning Outcomes During the Covid-19 Pandemic. *Prima Magistra: Educational Scientific Journal* , 2 (1), 90–101. <https://doi.org/10.37478/jpm.v2i1.878>
14. Taufiqurrahman, MI (2022). *The Effectiveness of Infographic Learning Media to Improve Learning Outcomes of Class Xi Senior High School Students in History Subjects* . Indonesian education university.
15. Terabe, S., Tanno, K., Yaginuma, H., & Kang, N. (2020). ScienceDirect The Impact of Flyer with Infographics on Public Awareness and Interest to Transportation Project. *Transportation Research Procedia* , 48 (2018), 2378–2384. <https://doi.org/10.1016/j.trpro.2020.08.282>
16. Tsai, S., Huang, H., & Chang, T. (2020). *education sciences Developing a Motion Infographic-Based Learning System for Effective Learning*. September. <https://doi.org/10.3390/educsci10090247>

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